

## CLAIMS

What is claimed is:

1. A method of processing Chinese kaolin, comprising  
5 providing Chinese kaolin having wherein at least about 90% by weight of the Chinese kaolin has an equivalent spherical diameter of about 75 microns or less and from about 0.01% to about 90% by weight of the Chinese kaolin has an equivalent spherical diameter of about 2 microns or less;  
10 delaminating the Chinese kaolin to provide at least about 60% by weight of Chinese kaolin having an average particle diameter of about 2 microns or less;  
pulverizing the delaminated Chinese kaolin at least two times; and  
heating the at least twice pulverized Chinese kaolin at a  
15 temperature from about 450 to about 1200° C. for a time from about 1 minute to about 10 hours.
2. The method of claim 1, wherein the delaminated Chinese kaolin is pulverized at least five times before heating.
- 20 3. The method of claim 1, wherein the delaminated Chinese kaolin is pulverized at least seven times before heating.
4. The method of claim 1, wherein delaminating the Chinese kaolin comprises forming a slurry comprising Chinese kaolin, grinding media,  
25 dispersants, and water and wet milling the slurry.
5. The method of claim 1, wherein after pulverization and before heating, at least about 80% by weight of the Chinese kaolin has an equivalent spherical diameter of about 2 microns or less.

5014

6. The method of claim 1, further comprising pulverizing the heated Chinese kaolin.

7. The method of claim 1, wherein providing Chinese kaolin having wherein at least about 90% by weight of the Chinese kaolin has an equivalent spherical diameter of about 60 microns or less and from about 0.1% to about 50% by weight of the Chinese kaolin has an equivalent spherical diameter of about 2 microns or less comprises

8. The method of claim 1, further comprising drying the delaminated Chinese kaolin before pulverizing the delaminated Chinese kaolin.

9. The method of claim 8, wherein drying comprises spray drying the delaminated Chinese kaolin.

10. A method of processing Chinese kaolin, comprising providing Chinese kaolin having at least about 90% by weight of the Chinese kaolin has an equivalent spherical diameter of about 75 microns or less and from about 0.01% to about 90% by weight of the Chinese kaolin has an equivalent spherical diameter of about 2 microns or less;

delaminating the Chinese kaolin to provide the Chinese kaolin with a first bulk density;

pulverizing the delaminated Chinese kaolin at least two times to provide the Chinese kaolin with a second bulk density, the second bulk density at least about 25% less than the first bulk density; and

heating the at least twice pulverized Chinese kaolin to form at least of metakaolin, partially calcined kaolin, and calcined kaolin.

11. The method of claim 1, wherein at least about 90% by weight of the

5014

at least twice pulverized Chinese kaolin has an equivalent spherical diameter of about 2 microns or less and at least about 60% by weight of the at least twice pulverized Chinese kaolin has an equivalent spherical diameter of about 1 micron or less.

5

12. The method of claim 1, wherein the delaminated Chinese kaolin is pulverized at least three times before heating.

10 13. The method of claim 1, wherein the delaminated Chinese kaolin is pulverized at least nine times before heating.

14. A system for automated processing of Chinese kaolin, comprising  
a pulverizer for pulverizing Chinese kaolin;  
a tester for testing and generating data of at least one parameter of  
15 the Chinese kaolin or at least one parameter of the pulverizer, the tester coupled to the pulverizer; and  
a controller, operatively coupled to the pulverizer and the tester, for  
controlling operation of the pulverizer based on data received from the tester, the  
controller further coupled to a memory.

20

15. The system of claim 14, wherein the tester comprises a device that measures particle size distribution.

25 16. The system of claim 14, wherein the parameter of the Chinese kaolin comprises at least one of particle size distribution, brightness, whiteness, roughness, percent moisture content, percent content of a particular chemical.

17. The system of claim 14, wherein the parameter of the Chinese kaolin comprises particle size distribution.

5014

18. The system of claim 14, wherein the parameter of the pulverizer comprises at least one of energy input and number of pulverization acts.

5 19. The system of claim 14, further comprising at least one of a grinder, delaminator, and heater operatively coupled to the tester and the controller.

20. Chinese kaolin processed to have a oil absorption of about 60 or more measured in accordance with ASTM D-1483-84.

10

21. The Chinese kaolin according to claim 20, processed to have a oil absorption of about 85 or more measured in accordance with ASTM D-1483-84.

15 22. The Chinese kaolin according to claim 20, processed to have a brightness of about 82 or more measured in accordance with TAPPI method T646 om-94.